I. AMENDMENTS

AMENDMENTS TO THE CLAIMS

Cancel claims 2, 5, and 23-25 without prejudice to renewal.

Please enter the amendments to claims 3, 4, 7, 10, 20, 27, 31, 34, and 36-39, as shown below.

Please enter new claims 40-47, as shown below.

1.-2. (Canceled)

3. (Currently amended) The polynucleotide composition of claim 36 [[2]], wherein the signal sequence comprises a hemagglutinin A (HA) signal sequence.

4. (Currently amended) The polynucleotide composition of claim 36 [[2]], wherein at least one codon of the nucleic acid encoding the plant allergen is modified from a wild type sequence of the non-host species to an analogous codon of a host species.

5.-6. (Canceled)

7. (Currently amended) The polynucleotide composition of claim 36 [[2]], wherein the ~~antigen~~ plant allergen is Amb a1.

8-9. (Canceled)

10. (Currently amended) A method for reducing a Th2 immune response to a plant allergen in a mammalian subject, comprising co-administering to the mammalian subject an effective amount of a polynucleotide composition ~~of claim 2~~ comprising a nucleic acid encoding a plant allergen and an effective amount of an immunostimulatory nucleotide sequence (ISS) comprising an unmethylated 5'-CG-3' nucleotide sequence to reduce a Th2 immune response to the allergen, wherein the nucleic acid encoding the plant allergen is further modified to include a nucleic acid encoding a signal sequence derived from a phylum other than a plant phylum, and wherein the signal sequence-encoding nucleic acid is operably linked to the allergen-encoding nucleic acid.

11-13. (Canceled)

14. (Previously presented) The method of claim 10, wherein the plant allergen is ragweed or grass pollen.

15-19. (Canceled)

20. (Currently amended) The method of claim 10, wherein the ISS comprises a nucleotide sequence selected from ~~the group consisting of~~ : 5'-rrcgyy-3', 5'-rycgyy-3', 5'-rrcgyycg-3', 5'-rycgyycg-3' and 5'-(TCG)n-3', where n is ≥ 1.

21. (Previously presented) The method of claim 20, wherein the sequence is AACGTT.

22.-26. (Canceled)

27. (Currently amended) A polynucleotide composition comprising:

a polynucleotide comprising a nucleic acid ~~sequence~~ encoding plant allergen ~~derived from a first phylum or first kingdom~~, wherein the nucleic acid ~~sequence~~ encoding the plant allergen is modified by deletion of a native signal sequence, and wherein the nucleic acid encoding the plant allergen is further modified to include a nucleic acid encoding a heterologous signal sequence from a phylum other than a plant phylum, wherein the signal sequence-encoding nucleic acid is operably linked to the antigen-encoding nucleic acid; and

an immunomodulatory nucleic acid ~~molecule~~ comprising the sequence 5'-cytosine-guanine-3',~~wherein the nucleic acid sequence encoding the plant allergen is further modified to include a heterologous signal sequence derived from a second phylum or second kingdom, wherein the signal sequence is operably linked to the antigen-encoding sequence~~.

28. (Previously presented) The polynucleotide composition of claim 27, wherein the heterologous signal sequence comprises a hemagglutinin A (HA) signal sequence.

29. (Previously presented) The polynucleotide composition of claim 27, wherein at least one codon of the nucleic acid sequence encoding the plant allergen is modified from a wild type sequence of the non-host species to an analogous codon of a host species.

30. (Previously presented) The polynucleotide composition of claim 27, wherein the plant allergen is Amb a1.

31. (Currently amended) The polynucleotide composition of claim 27, wherein the immunomodulatory nucleic acid molecule comprises a sequence selected from ~~the group consisting of~~ 5'-rrcgyy-3', 5'-rycgyy-3', 5'-rrcgyycg-3', 5'-rycgyycg-3' or 5'-(TCG)n-3', where n is ≥ 1.

32. (Previously presented) The polynucleotide composition of claim 27, wherein the immunomodulatory nucleic acid molecule comprises the sequence AACGTT.

33. (Previously presented) The method of claim 10, wherein the level of IgE specific for the plant allergen is reduced.

34. (Currently amended) A polynucleotide composition comprising a nucleic acid encoding a plant allergen ~~derived from a non-host species of a first phylum or first kingdom~~, wherein the nucleic acid encoding the plant allergen is further modified to include a nucleic acid encoding a signal sequence comprising a hemagglutinin signal sequence, wherein the signal ~~sequence~~ sequence-encoding nucleic acid is operably linked to the allergen-encoding nucleic acid ~~sequence~~.

35. (Previously presented) The polynucleotide composition of claim 34, wherein at least one codon of the nucleic acid sequence encoding the plant allergen is modified from a wild type sequence of the plant allergen to an analogous human codon.

36. (Currently amended) A polynucleotide composition comprising:

a) a nucleic acid encoding a plant allergen ~~derived from a non-host species of a first phylum or first kingdom~~, wherein the nucleic acid encoding the plant allergen is further modified to include a nucleic acid encoding a signal sequence from a phylum other than a plant phylum ~~derived from a second~~

~~phylum or second kingdom~~, wherein the signal ~~sequence~~ sequence-encoding nucleic acid is operably linked to the allergen-encoding nucleic acid ~~sequence~~; and

b) a universal antigen or an immunogenic fragment thereof.

37. (Currently amended) A polynucleotide composition comprising a nucleic acid encoding an Amb a1 allergen modified by deletion of a native Amb a1 signal sequence, wherein the nucleic acid encoding the Amb a1 allergen is further modified to comprise a nucleic acid encoding a hemagglutinin signal sequence, wherein the hemagglutinin signal sequence-encoding nucleic acid is operably linked to the Amb a1 allergen-encoding nucleic acid ~~sequence~~.

38. (Currently amended) The polynucleotide composition of claim 37, wherein at least one codon of the nucleic acid ~~sequence~~ encoding the Amb a1 allergen is modified from a wild type sequence of the Amb a1 allergen to an analogous human codon.

39. (Currently amended) A polynucleotide composition comprising a nucleic acid encoding an Amb a1 allergen modified by deletion of a native Amb a1 signal sequence, wherein the nucleic acid encoding the Amb a1 allergen is further modified to comprise a nucleic acid encoding a heterologous signal sequence, wherein the heterologous signal sequence-encoding nucleic acid is operably linked to the Amb a1 allergen-encoding sequence, and wherein at least one codon of the nucleic acid ~~sequence~~ encoding the Amb a1 allergen is modified from a wild type sequence of the Amb a1 allergen to an analogous human codon.

40. (New) The composition of claim 36, wherein plant allergen is ragweed or grass pollen.

41. (New) A method for reducing a Th2 immune response to a plant allergen in a mammalian subject, the method comprising administering to the mammalian subject an effective amount of the composition of claim 27 to reduce a Th2 immune response to the plant allergen.

42. (New) The method of claim 41, wherein the plant allergen is a ragweed or grass pollen.

43. (New) The method of claim 41, wherein the plant allergen is Amb a1.

44. (New) The method of claim 41, wherein the immunomodulatory nucleic acid comprises a sequence selected from 5'-rrcgyy-3', 5'-rycgyy-3', 5'-rrcgyycg-3', and 5'-$(TCG)_n$-3', where n is ≥ 1.

45. (New) The method of claim 41, wherein the immunomodulatory nucleic acid comprises the sequence AACGTT.

46. (New) The method of claim 10, wherein at least one codon of the nucleic acid encoding the plant allergen is modified from a wild type sequence of the non-host species to an analogous codon of a host species.

47. (New) The method of claim 10, wherein the polynucleotide composition further comprises a universal antigen or an immunogenic fragment thereof.